

REMARKS

In response to the Office Action of September 13, 2010, applicant has amended claim 9 by incorporating the contents of claims 10 and 11 therein and canceled claims 10 and 11; has amended claim 12 to change the dependency of this claim in light of the cancellation of claim 11; and has amended claim 23 to correct a typographical error.

Briefly noting the structure of the claims, independent claim 4 is directed to determining the *axial* rotation of a pelvis from a single fluoroscopic image in the near anteroposterior direction; independent claim 9 is directed to determining the *transaxial* rotation of a pelvis from such an image; and independent claim 22 is directed to determining both *axial* and transaxial rotation from such an image.

Claim Rejection: 35 U.S.C. §102.

Claim 9 was rejected under 35 U.S.C. §102 over Konishi et al., "Determination of acetabular coverage of the femoral head with use of a single anteroposterior radiograph. A new computerized technique." Konishi describes a method of determining the acetabular "coverage" of the femoral head (i.e., the portion of the major weight-bearing area of the femoral head that is covered by the acetabulum). Konishi uses two different radiographs (one anteroposterior, one lateral) to measure pelvic tilt in two different planes (anteroposterior and lateral, respectively):

Anteroposterior *and* lateral radiographs of the hips were made for each cadaver and each normal subject. *On the anteroposterior radiograph*, the height of the obturator foramen divided by the distance between the midline of the teardrops was used as an indicator of the angle of pelvic tilt, according to the technique of Katada and Ando (Appendix II). *On the lateral radiograph*, the real angle of pelvic tilt was measured from the two reference angles (see Appendix III for details of measurement). (Konishi, p. 1321, emphasis added).

Further, as indicated in the above, for measuring anteroposterior tilt, Konishi used the height of the obturator foramen as a vertical indicator. While readily visible in a radiograph, this height is substantially less than the distance between the image point on the radiograph of the pubic symphysis and the midpoint of a line joining the image points of the left and right sacroiliac joints. Lesser precision is obtained when measuring a

small distance than when measuring a larger distance and thus the landmarks used by Konishi and thus the Konishi procedure is subject to greater error.

To emphasize this distinction, applicant has incorporated into claim 9 the specific landmarks previously specified in claims 10 and 11, and thus canceled claims 10 and 11 as now redundant. Corresponding changes have been made to claim 4, and claims 5 and 6 canceled accordingly.

Claim Rejections: 35 U.S.C. §103.

Claims 4-6, 10, 11 14, and 22-27 have been rejected under 35 U.S.C. §103 as unpatentable over Konishi in view of Sarin et al. The examiner graciously acknowledges that "Konishi doesn't expressly teach using first and second landmarks to find the axial rotation in the near AP image.", (Office action, p. 4), but seeks to fill the gap with Sarin (US 20040254586). Sarin was discussed extensively in the last Office Action. As there noted, Sarin does not deal with radiographic techniques at all. And "Sarin does *not* form an image of the pelvis and does *not* determine axial rotation of the pelvis with respect to the plane of the image. Indeed, Sarin teaches that image-forming methods are to be *avoided*:" ("Amendment Under 37 C.F.R. 1.116, at p. 8). The only apparent pertinence of Sarin is that he uses the anterior superior iliac spines and the pubic symphysis as reference points for positioning a mechanical frame. The anterior superior iliac spines and the pubic symphysis are well-known reference points; applicant does not claim to have discovered this. However, applicant *does* claim that their use to define pelvic orientation from a single fluoroscopic image *is* novel and unobvious. The fact that Sarin uses these points for non-imaging location of a mechanical frame teaches nothing about their usefulness in an imaging environment. There is no basis for combining Konishi and Sarin and, even if there were, the content of claims 4-6, 10, 11 14, and 22-27 would not be suggested by the combination.

Accordingly, we believe that the claims are patentably distinguishable over the prior art and should be allowed.

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Respectfully submitted,

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